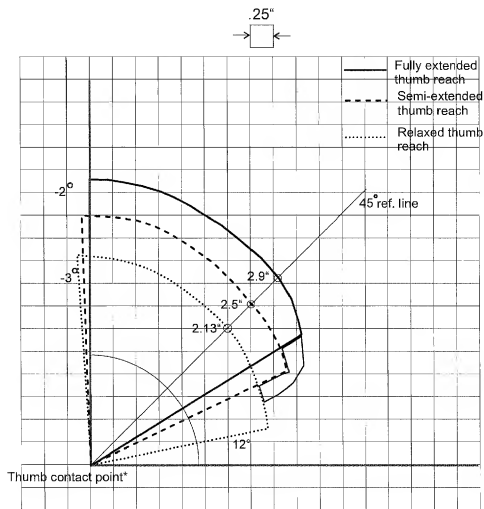


REPLACEMENT SHEET



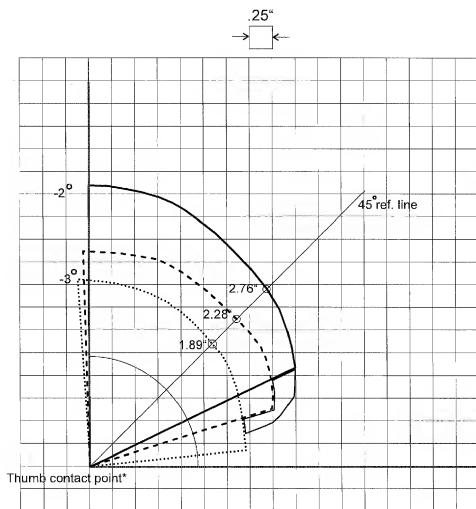
1st Percentile Left Thumb Sweeps, Females Age 12-19
(Uniform object thickness 0.75", corner radius 1.5")

Note: each data point represents thumb tip at centerline of thumb

* Located vertically over point of thumb base contact with corner, at midpoint of lower corner radius on device

FIG. 10I

REPLACEMENT SHEET

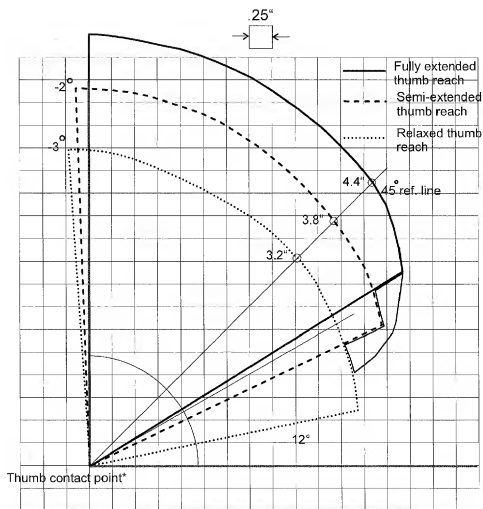


1st Percentile Left Thumb Sweeps, Females Age 12-19
(Uniform object thickness 0.75° , corner radius 0.75°)

* Located vertically over point of thumb base contact with corner,
at midpoint of lower corner radius on device

FIG. 10J

REPLACEMENT SHEET



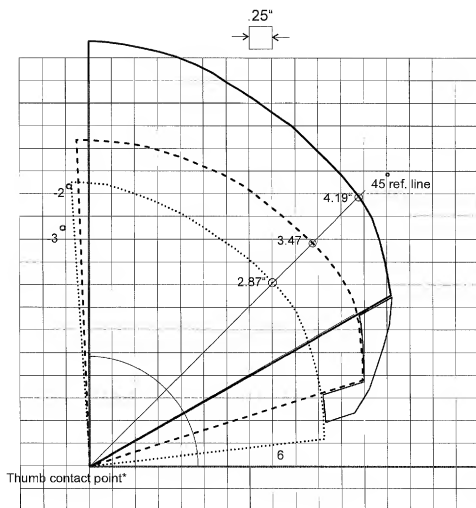
95th Percentile Left Thumb Sweeps, Male Age 12-19
(Uniform object thickness 0.75", corner radius 1.5")

Note: each data point represents thumb tip at centerline of thumb

* Located vertically over point of thumb base contact with corner, at midpoint of lower corner radius on device

FIG. 10K

REPLACEMENT SHEET

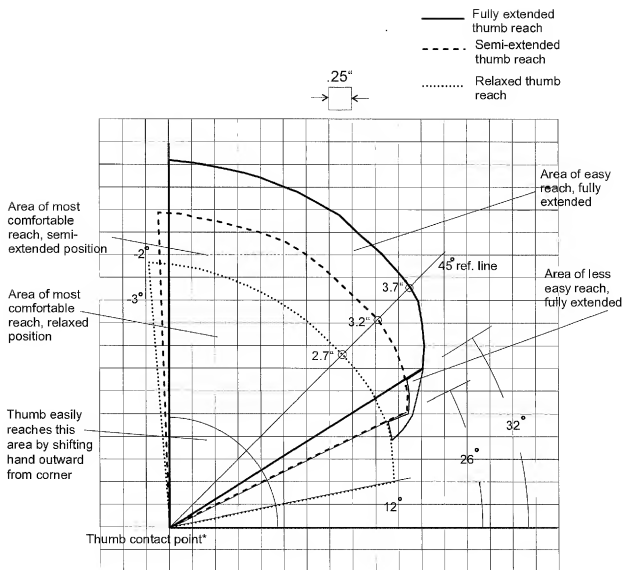


95th Percentile Left Thumb Sweeps, Male, Age 12-19
(Uniform object thickness 0.75", corner radius 0.75")

* Located vertically over point of thumb base contact with corner,
at midpoint of lower corner radius on device

FIG. 10L

REPLACEMENT SHEET



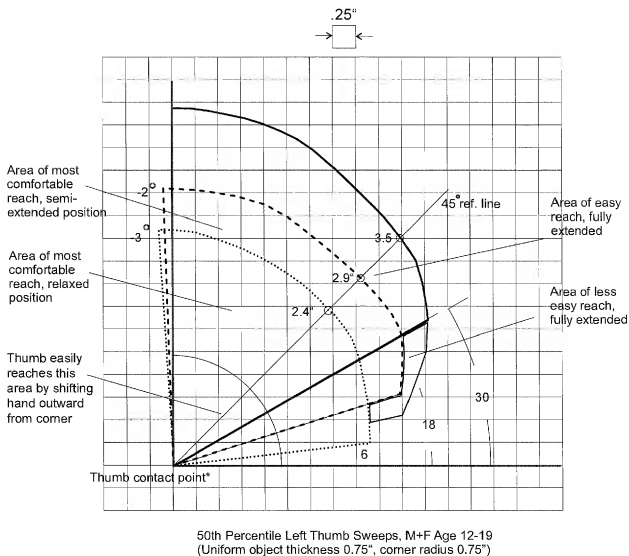
50th Percentile Left Thumb Sweeps, M+F Age 12-19
 (Uniform object thickness 0.75", corner radius 1.5")

Note: Each data point represents thumb tip at centerline of thumb

* Located vertically over point of thumb base contact with corner,
 at midpoint of lower corner radius on device

FIG. 10M

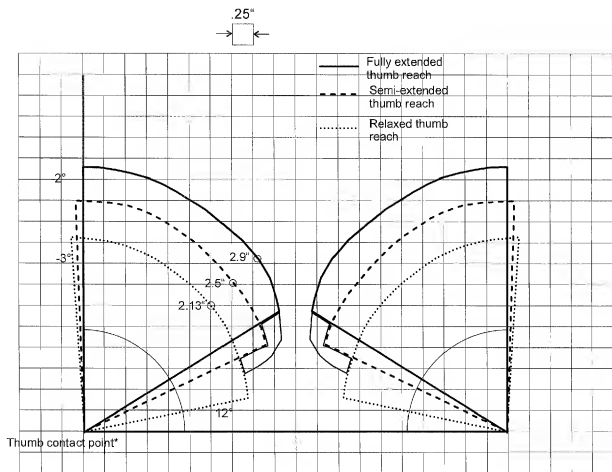
REPLACEMENT SHEET



* Located vertically over point of thumb base contact with corner, at midpoint of lower corner radius on device

FIG. 10N

REPLACEMENT SHEET



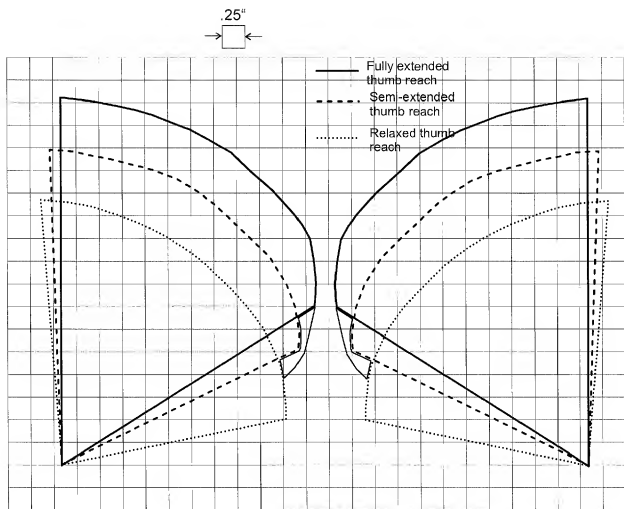
1st Percentile Combined Thumb Sweeps, Females Age 12-19
(Uniform object thickness 0.75", corner radius 1.5")

Note: each data point represents thumb tip at centerline of thumb

* Located vertically over point of thumb base contact with corner,
at midpoint of lower corner radius on device

FIG. 100

REPLACEMENT SHEET



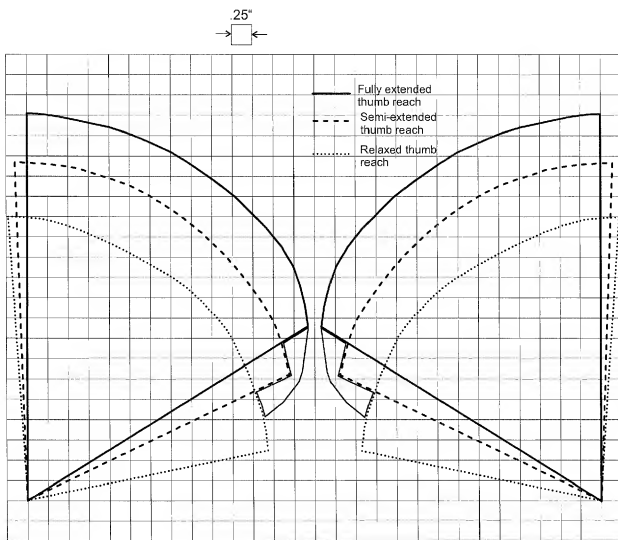
50th Percentile Combined Thumb Sweeps, Male+Females Age 12-19
(Uniform object thickness 0.75° , corner radius 1.5°)

Notes: Each data point represents thumb tip at centerline of thumb
Left and right thumb envelopes are arbitrarily placed relative to each other
to permit cutting or measurements without overlapped reach lines

* Located vertically over point of thumb base contact with corner,
at midpoint of lower corner radius on device

FIG. 10P

REPLACEMENT SHEET



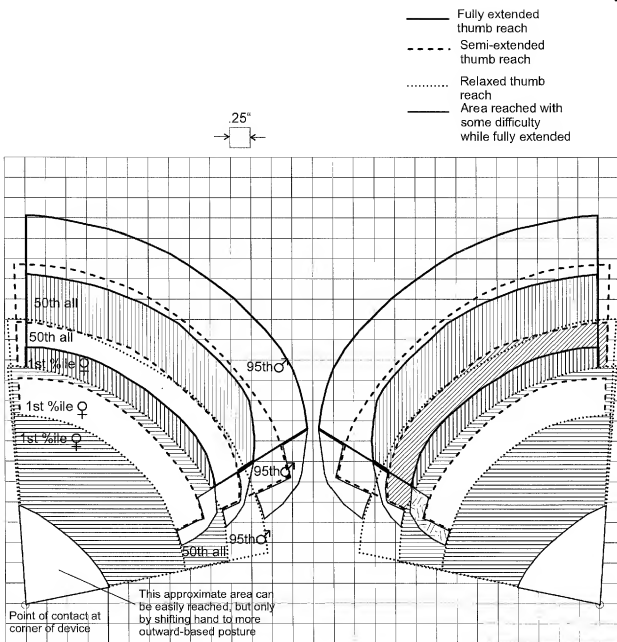
95th Percentile Combined Thumb Sweeps, Males Age 12-19
(Uniform object thickness 0.75", **corner radius 1.5"**)

Notes: Each data point represents thumb tip at centerline of thumb
Left and right thumb envelopes are arbitrarily placed relative to each other
to permit cutting or measurements without overlapped reach lines

* Located vertically over point of thumb base contact with corner,
at midpoint of lower corner radius on device

FIG. 10Q

REPLACEMENT SHEET



Combined Thumb Sweeps, 1st Percentile Females Through 95th Percentile Males Age 12-19

(Uniform object thickness 0.75", corner radius 1.5")

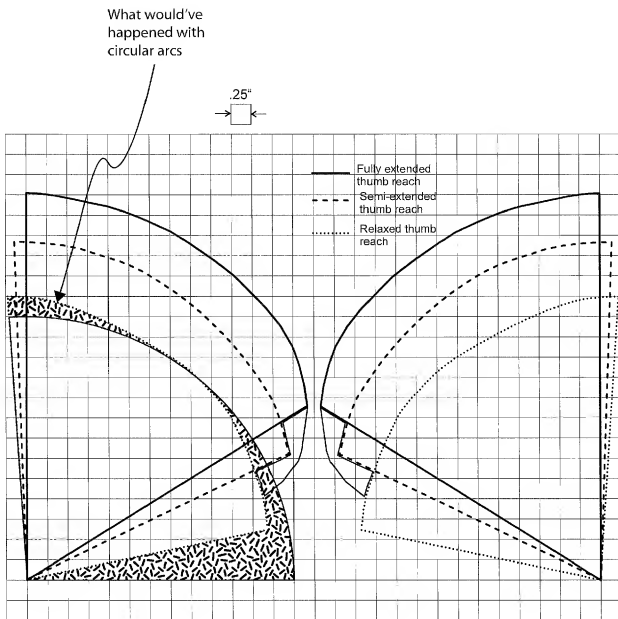
Notes: Each data point represents thumb tip at centerline of thumb

Left and right thumb envelopes are arbitrarily placed relative to each other to permit cutting or measurements without overlapped reach lines

* Located vertically over point of thumb base contact with corner, at midpoint of lower corner radius on device

FIG. 10R

REPLACEMENT SHEET



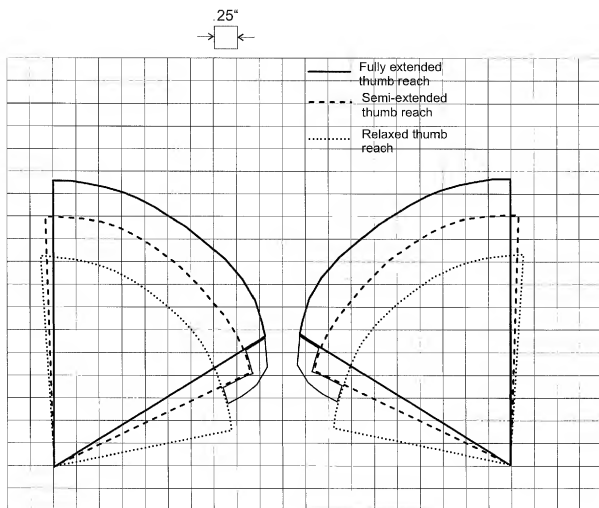
95th Percentile Combined Thumb Sweeps, Males Age 12-19
 (Uniform object thickness 0.75", **corner radius 1.5"**)

Notes: Each data point represents thumb tip at centerline of thumb

* Located vertically over point of thumb base contact with corner,
 at midpoint of lower corner radius on device

FIG. 10S

REPLACEMENT SHEET



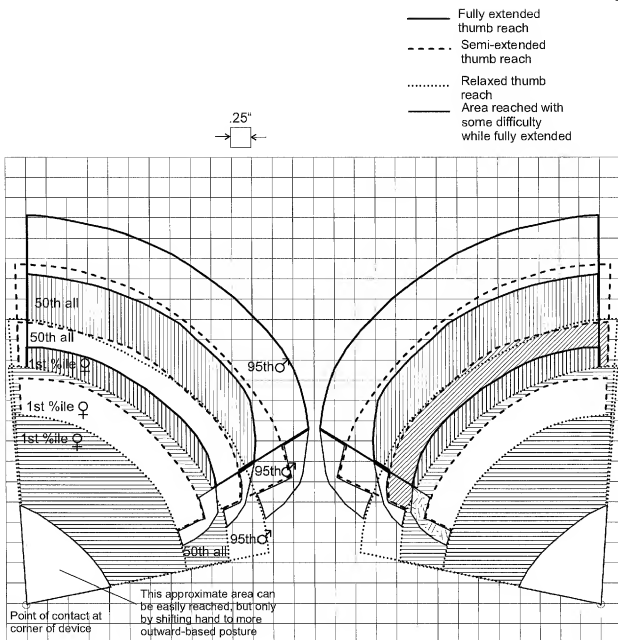
1st Percentile Combined Thumb Sweeps, Females Age 12-19
 (Uniform object thickness 0.75", corner radius 1.5")

Notes: Each data point represents thumb tip at centerline of thumb
 Left and right thumb envelopes are arbitrarily placed relative to each other
 to permit cutting or measurements without overlapped reach lines

FIG. 10T



REPLACEMENT SHEET



Combined Thumb Sweeps, 1st Percentile Females Through 95th Percentile Males Age 12-19

(Uniform object thickness 0.75", corner radius 1.5")

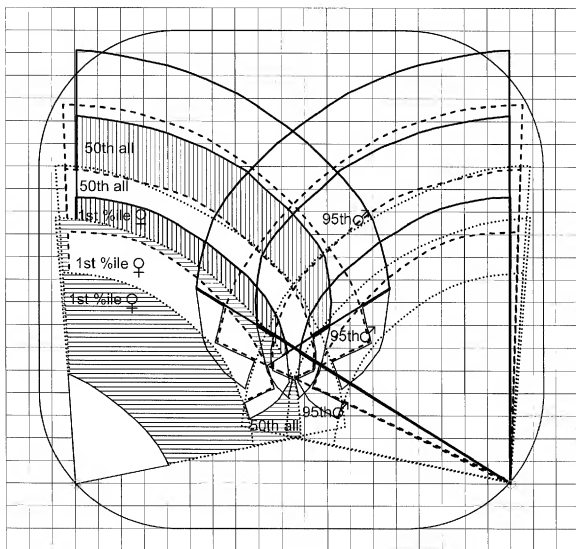
Notes: Each data point represents thumb tip at centerline of thumb

Left and right thumb envelopes are arbitrarily placed relative to each other to permit cutting or measurements without overlapped reach lines

* Located vertically over point of thumb base contact with corner, at midpoint of lower corner radius on device

FIG. 10U

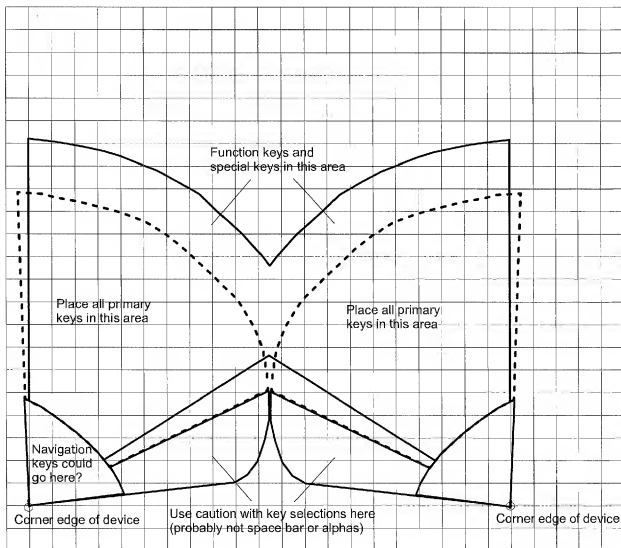
REPLACEMENT SHEET



Combined thumb sweeps on 1.5 in. corner template, 5.5 in.
 (50th percentile relaxed reaches overlap 0.15 in.)

FIG. 10V

REPLACEMENT SHEET



Key Placement Guidelines

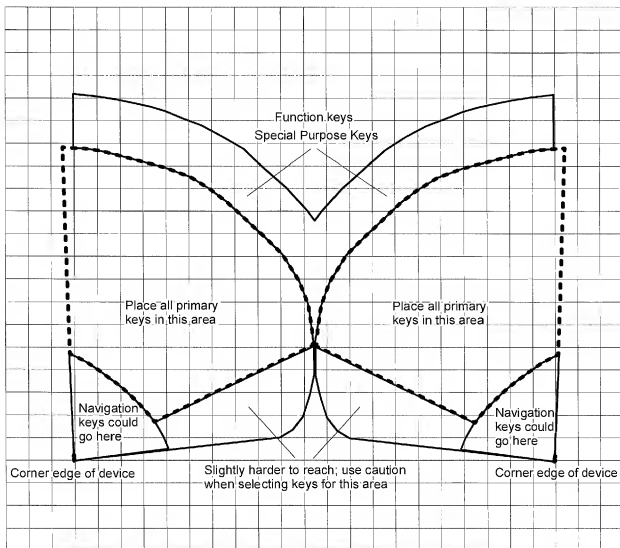
(Uniform object thickness 0.75", corner radius 1.5")

Using 50th percentile semi-extended reach for primary keying area

FIG. 10W



REPLACEMENT SHEET



Key Placement Guidelines

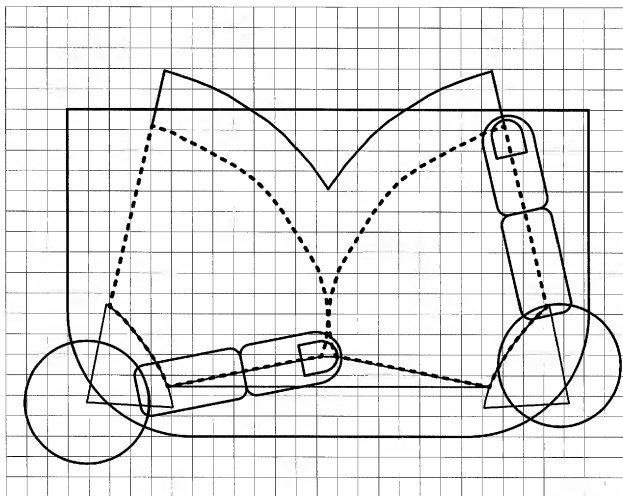
Device thickness 0.75"(uniform), corner radius 1.5" (plan view), corner radius approx. 1.0" (side view)

Notes:

For device thickness of 0.75 in., keying area width is approx. 5.5 in.
Reach areas are valid for placement of thumbs at corner or along sides
Smaller corner radii decrease reach areas but permit easier reach into blue areas
Device thicknesses greater than 0.75 in. quickly decrease size of reach areas
Reach plots generally indicate a device width of approx. 6.0 in.

FIG. 10X

REPLACEMENT SHEET



1. Used reach envelope of 50% combined male and female with relaxed grip (not pinch or extended reach).
2. Drew geometry to represent the approx dims of 50% woman. Circle represents the palm at the base and crotch of the thumb.
3. Rotated the reach envelope approx 15 to more closely resemble the hand posture of holding a game controller.

FIG. 10Y



REPLACEMENT SHEET

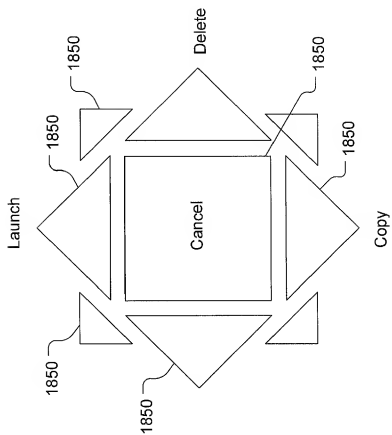


FIG. 15